

RADIO CONTROLLED ELECTRIC POWERED RACING BUGGY

OFF-ROAD RACER

ULTIMA

- SUPER LIGHTWEIGHT FOR QUICK ACCELERATION.
- LONG SUSPENSION TRAVEL FOR TOP HANDLING ON EVEN THE ROUGHEST TRACKS.
- NEW ALUMINUM PLATE/TRUSS CHANNEL-TYPE CHASSIS FOR HIGH STRENGTH AND LIGHT WEIGHT.
- PERFECT COMBINATION OF SUSPENSION DESIGN AND WEIGHT DISTRIBUTION FOR TOP HANDLING.
 - INDEPENDENT SUSPENSION ON ALL FOUR WHEELS WITH NEW RACE-TESTED GEOMETRY.
 - OIL-FILLED SHOCK ABSORBERS ON ALL FOUR WHEELS.
 - FRONT ANTI-SWAY BAR STANDARD. REAR BAR OPTIONAL.
 - POWERFUL MABUCHI RS-540S MOTOR INCLUDED IN KIT.
 - TRUE GEAR-TYPE DIFFERENTIAL.
 - STRONG ALUMINUM AND NYLON PARTS.
 - A QUALITY DESIGN FOR SIMPLE MAINTENANCE.
- MANY HIGH PERFORMANCE OPTIONAL PARTS ARE AVAILABLE.

1:10 SCALE

BATTERY: 7.2V-1200 mAh NiCd

RADIO: 2-Channel
(Not Included)



KYOSHO[®]
THE FINEST RADIO CONTROL MODELS

◀ KIT No.3115 ▶

ULTIMA

Before you begin, carefully read through the manual. This will give you a better understanding of the construction of this model.

○ Certain symbols are used throughout the instructions. Pay attention to their location.

OIL ... Points where Grease/Oil should be applied. (This will reduce wear and friction and provide a smoother operating point.)

SW LOCK ... Places where Screw Lock (Zip Lock, etc.) should be applied. (This will prevent screws and nuts from loosening up during operation due to the vibration of the model.)

TECH ... Where you see this face, are steps that you should pay extra particular attention to when building this model.

IMPORTANT! BEFORE YOU BEGIN

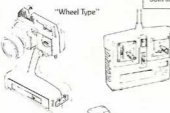
This is a sophisticated model with a large number of moving parts. Before you begin assembly, take a look through the box and these instructions carefully to decide whether or not you are ready for this challenge! If you do not feel that this type of model is for you, it may be returned to the dealer as long as it is NEW and UNUSED. UNDER NO CIRCUMSTANCES CAN YOUR DEALER ACCEPT A KIT FOR RETURN IF ASSEMBLY HAS ALREADY BEGUN! If this is not what you bargained for, then go no further and return this kit to the dealer immediately. But, if a little maintenance doesn't bother you and the thrill of high performance driving is for you, then don't hesitate another minute! Read through this entire manual thoroughly to familiarize yourself with the parts and methods of construction used before actually starting to build.

KYOSHO ENTIRE CONTENTS
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2 CHANNEL RADIO SYSTEM

A two channel, two servo radio control system is required for running the Ultima. The various components are pictured below.

TRANSMITTER



Note: use only radio frequencies specifically allowed to operate "surface" models such as R/C cars and boats. In the United States those frequencies fall within the "75 MHz" or "27 MHz" bands. Use of any other frequencies is both illegal and dangerous.

RECEIVER



SERVO S



BATTERY HOLDER



SWITCH

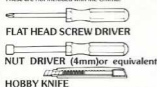


SMALL PARTS

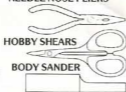
On Pages 23 & 24 there is a guide for the small parts used in each step. Simply cut out the sheet along the dotted line and use it to help you locate the particular parts and their shape used in each step.

REQUIRED TOOLS

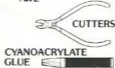
These are not included with the Ultima.



NEEDLE NOSE PLIERS



AWL



POLYCA PAINT

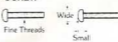


MASKING TAPE



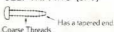
A few different types of screws are used in the construction of your model. Here are some examples of them and how they will be indicated in the instructions. For example, Self Tapping will simply be S/T screw.

SCREW



If it is an ordinary screw it will be marked "screw"

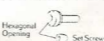
SELF TAPPING (S/T)



FLAT HEAD SCREW (F/H)



ALLEN HEAD SCREW (A/H)



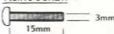
PAN HEAD SCREW (P/H)



METRIC NUTS AND BOLTS

All nuts and bolts used throughout this kit are metric size. Therefore, some of the notations may not be familiar to you. An M3 nut is a 3 millimeter (3mm) nut. An M3x15 screw is 15mm long and 3mm in diameter. Some round parts may be labeled as "4 Ø".

M3x15 SCREW



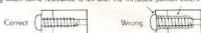
4 Ø WASHER



Washer" (this should be a washer with a 4mm inside diameter) or a "3 Ø Bushing" (a bushing with a 3mm inside diameter). At various points throughout the manual these parts are labeled and pictured in their actual size on the left hand side of the page. For your reference, 1 millimeter equals approximately .039 inches.

Use the list of small parts to compare the shapes of the small parts used with each step such as: screws, nuts and washers.

Do not use excessive force when tightening S/T type screws into plastic. Overtightening will cause the threaded portion of the plastic to strip. It is recommended to stop tightening when some resistance is felt after the threaded portion enters the plastic.



BALL BEARINGS

Ball Bearings greatly improve performance and reduce maintenance. A complete set of optional bearings for your Ultima is available. The #1974 Ultima bearing set contains (6) 5mmx10mm and (2) 8mmx14mm ball bearings and (6) 1mmx8mmx3mm ball bearings with washer & spacer.



OPTIONAL MOTORS

The Ultima comes with a RS-540 motor as stock. You may wish to upgrade the performance by purchasing a Kyosho LaMan motor. We have found the best ones to be the 480C, 360PT, 380G and 240SB.



BATTERY PACK

A 7.2V battery similar in shape to the one shown here is required. The Kyosho #2218 or #2306 are good choices.



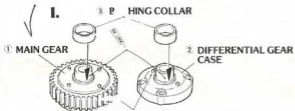
CHARGER

You'll need a charger to charge your battery. Kyosho offers two types for 6-Cell packs.

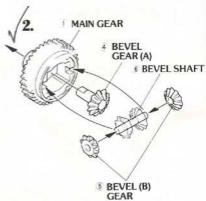
Model	Name	Time	Rate %	Features
No. 1846	Multi-Charger (DC 12V)	30 Min	100%	Full charge. Wide range of batteries.
No. 1848 Or 1845	Auto Charger (DC 12V)	30 Min	100%	The best fully automatic operation. Easy to use, suitable for competition.



1 DIFFERENTIAL GEAR ASSEMBLY



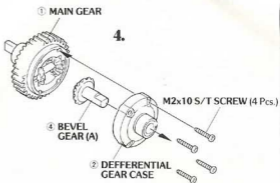
- Remove the excess flash with a hobby knife.
- If the optional ball bearings are going to be used do not cement the bushing to the differential case. The bearings will be installed in Step 2.



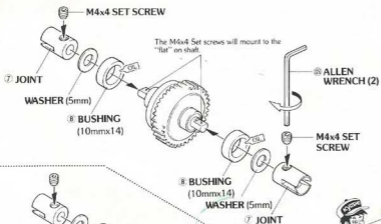
3.



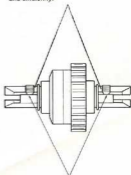
- Fill the gear case with the silicone grease supplied with the kit.



2 JOINT INSTALLATION



A small cap should be left between the washer (5mm) and the 7 joint. This will allow the differential to operate smoothly and efficiently.

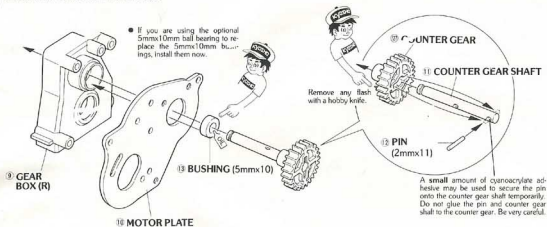


The Set screw mounts to the "lat" on the shaft. This will secure the joints to the shaft. Tighten the Set screws very tight.

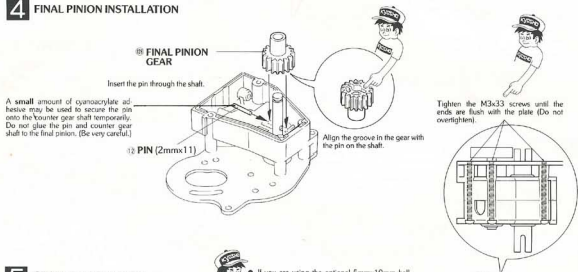
- If you are using the optional ball bearings, install them now as shown.

1911 OPTIONAL BALL BEARINGS (8mmx14)

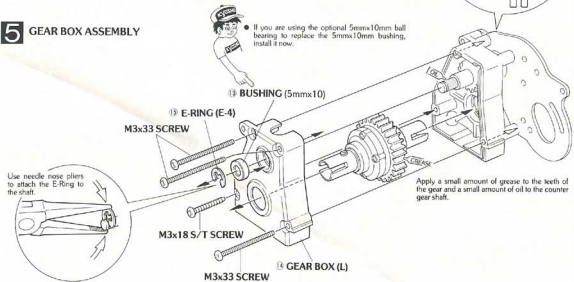
3 COUNTER GEAR INSTALLATION



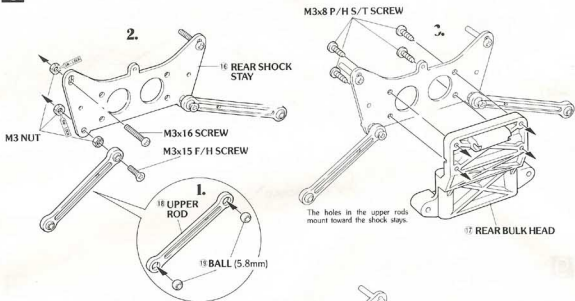
4 FINAL PINION INSTALLATION



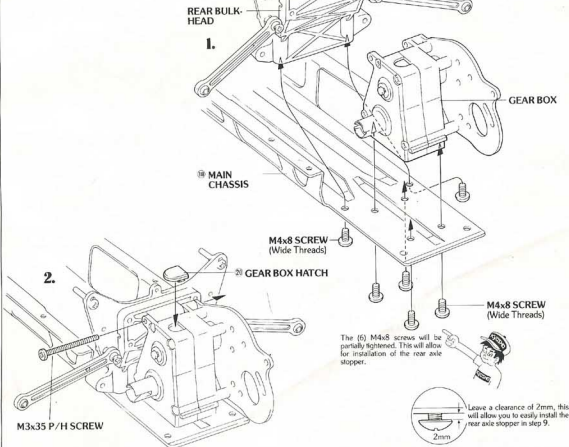
5 GEAR BOX ASSEMBLY



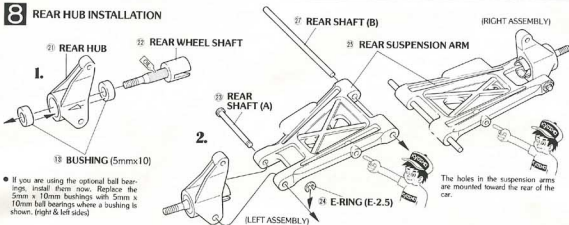
6 REAR SHOCK STAY INSTALLATION



7 GEARBOX INSTALLATION

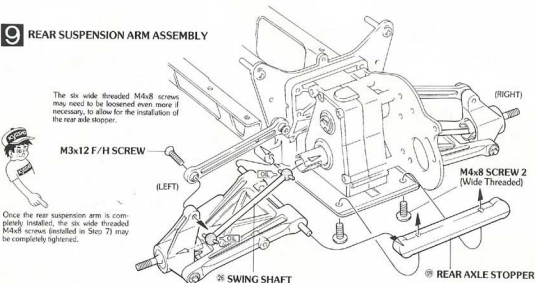


8 REAR HUB INSTALLATION



• If you are using the optional ball bearings, install them now. Replace the 5mm x 10mm bushings with 5mm x 10mm ball bearings where a bushing is shown. (right & left sides)

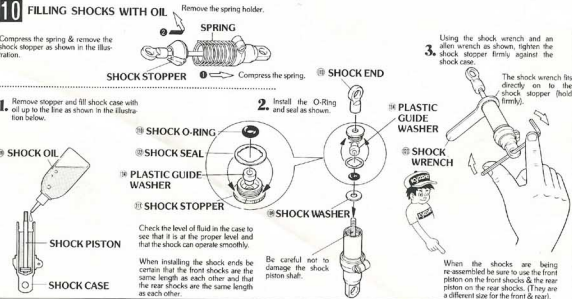
9 REAR SUSPENSION ARM ASSEMBLY



The six wide threaded M4x8 screws may need to be loosened even more if necessary, to allow for the installation of the rear axle stopper.

Once the rear suspension arm is completely installed, the six wide threaded M4x8 screws (installed in Step 7) may be completely tightened.

10 FILLING SHOCKS WITH OIL



Compress the spring & remove the shock stopper as shown in the illustration.

1. Remove stopper and fill shock case with oil up to the line as shown in the illustration below.



SHOCK STOPPER

Compress the spring.

SHOCK END

3. Using the shock wrench and an allen wrench as shown, tighten the shock stopper firmly against the shock case.

The shock wrench fits directly on to the shock stopper (hold firmly).

SHOCK O-RING

SHOCK SEAL

PLASTIC GUIDE WASHER

SHOCK STOPPER

SHOCK WASHER

PLASTIC GUIDE WASHER

SHOCK WRENCH

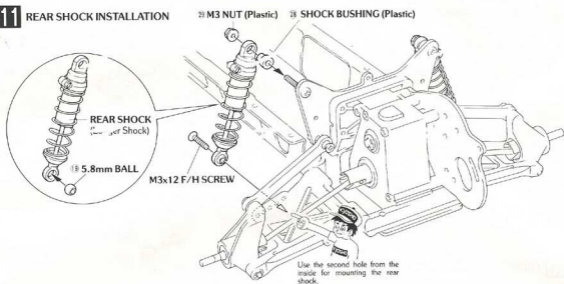
Check the level of fluid in the case to see that it is at the proper level and that the shock can operate smoothly.

When installing the shock ends be certain that the front shocks are the same length as each other and that the rear shocks are the same length as each other.

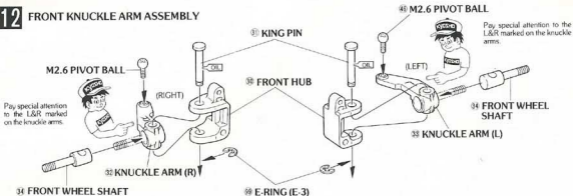
Be careful not to damage the shock piston shaft.

When the shocks are being re-assembled be sure to use the front piston on the front shocks & the rear piston on the rear shocks. (They are a different size for the front & rear).

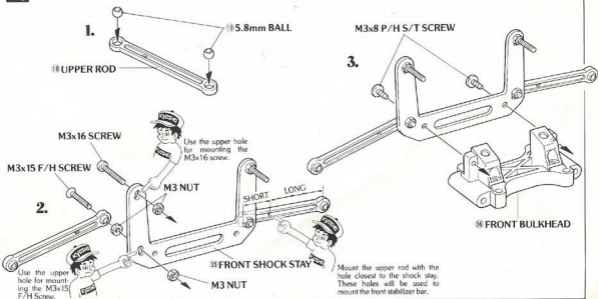
11 REAR SHOCK INSTALLATION



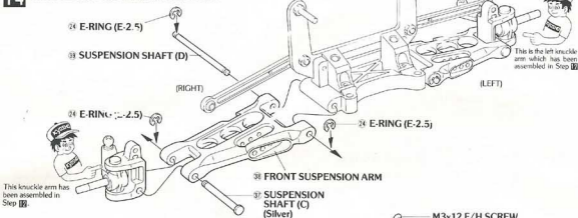
12 FRONT KNUCKLE ARM ASSEMBLY



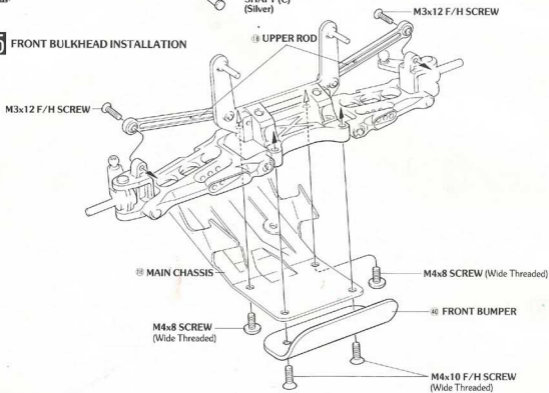
13 FRONT SHOCK STAY ASSEMBLY



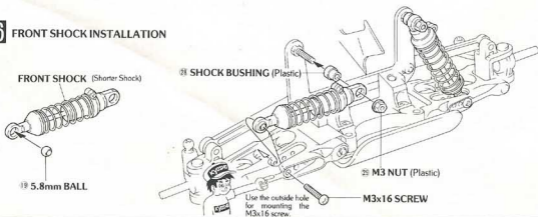
14 FRONT SUSPENSION ARM ASSEMBLY



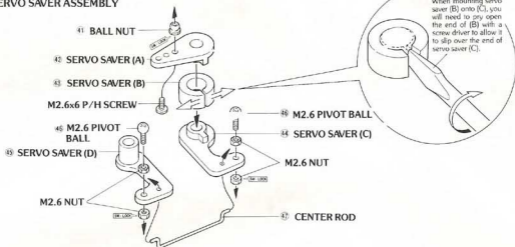
15 FRONT BULKHEAD INSTALLATION



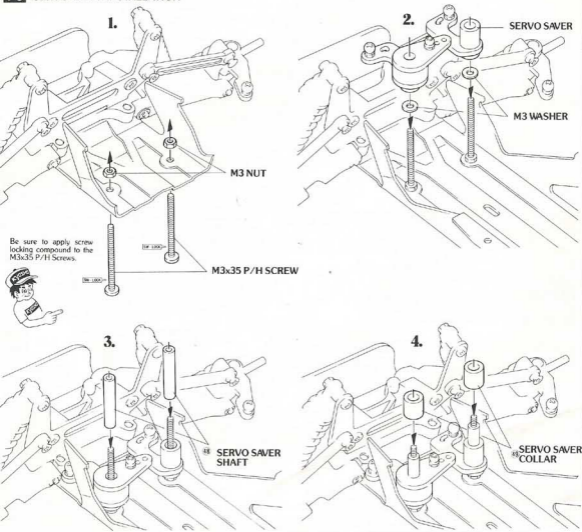
16 FRONT SHOCK INSTALLATION



17 SERVO SAVER ASSEMBLY

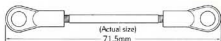
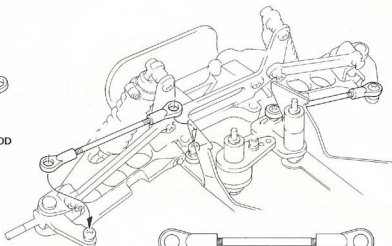
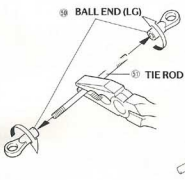


18 SERVO SAVER INSTALLATION



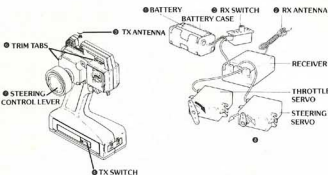
19 TIE ROD INSTALLATION

Assemble tie rod as shown.



By rotating the ball ends, adjust the tie rod to the proper length.

20 HOW TO CHECK YOUR RADIO SYSTEM



Follow steps 1-8.

1. Install the batteries into both the transmitter and receiver. If your radio is a rechargeable system, charge it as outlined in the manual that came with your set.
2. Unwind the receiver antenna and plug the servo and battery connectors into the receiver.
3. Extend the transmitter antenna.
4. Turn on the power switch of the transmitter.
5. Turn on the power switch of the receiver.
6. Set the small trim levers to the center position and make sure that both main control sticks are also centered.
7. Move both main control sticks slowly through their full travel. The servo horns should move in proportion to the movement of your sticks.
8. When trim levers and sticks are at their neutral positions, the servo horns should be centered. You may now turn off the receiver, then the transmitter and unplug the servos and battery from the receiver.

*It is important to always switch the transmitter on first . . . then the receiver. When turning off the system, turn off the receiver first and then the transmitter.



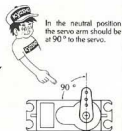
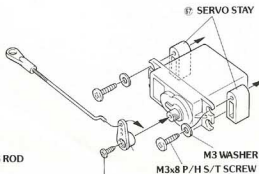
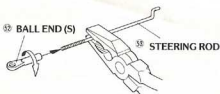
21 STEERING ROD ASSEMBLY

Remove the unnecessary (shaded) portion of the servo arm/wheel to obtain the proper shape needed.

This hole may have to be enlarged slightly with an awl.



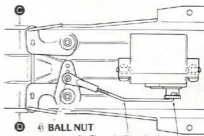
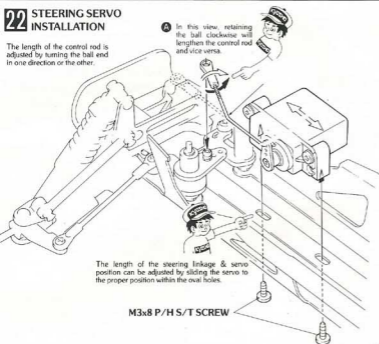
Use a hole that is 13mm from the center of the arm/wheel.



Use the screw that is included with your radio.

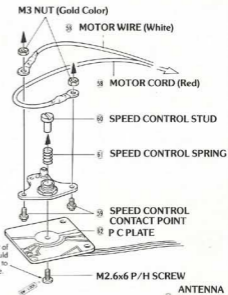
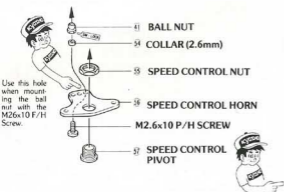
22 STEERING SERVO INSTALLATION

The length of the control rod is adjusted by turning the ball end in one direction or the other.

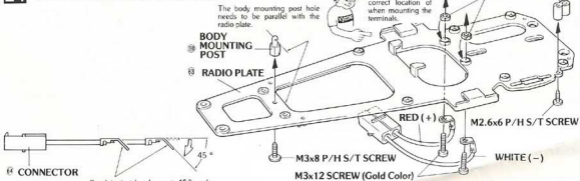


The control rod should be adjusted so that the distances **②** & **③** are equal when the servo is in the neutral position.

23 SPEED CONTROL ASSEMBLY



24 BATTERY CONNECTOR INSTALLATION



25 SWITCH HARNESS WIRING

BEC
BEST ELECTRONIC COMPONENTS

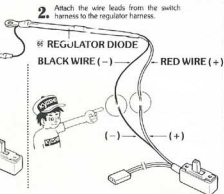
If you are using the BEC type radio skip this step and continue on step 26.



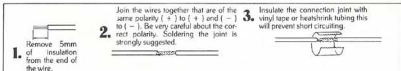
The battery that powers the motor also powers the receiver. Be careful and do not allow the polarity to be reversed. Also do not allow 7.2V to flow directly into the receiver.



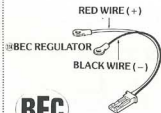
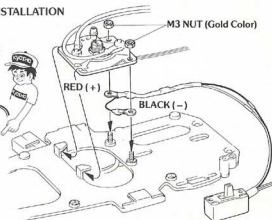
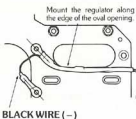
Use the switch that is provided with your radio.



NOTE: The colors of the lead wires are different depending upon radio manufacturer. Most use red for positive (+) and black for negative (-). The exception being Cox and Airtronics (Sanyo). Their (+) lead has a white stripe and the middle lead is (-). Pay very close attention to the polarity. If necessary, contact the manufacturer to be sure.



26 SPEED CONTROL INSTALLATION



BEC
BEST ELECTRONIC COMPONENTS

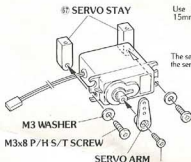
A radio contained in a box with this type of logo is a BEC type radio. With this type radio, the switch wiring and a regulator is necessary. Use the BEC connector supplied with this kit as illustrated. Also, **NOTE:** with this connector the correct polarity is very important.

Pay special attention to the polarity of the terminal lead wires. Permanent radio damage could result from reversing the polarity.

When mounting the Red and Black terminal ends, make sure that the insulation on the terminals do not interfere with the connection the terminals make with the screws they mount to.

27 SPEED CONTROL SERVO INSTALLATION

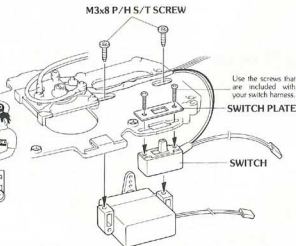
Remove the unnecessary (shaded) portion of the servo arm/wheel to obtain the proper shade needed.



Use a hole that is 15mm from the center.

The servo arm should be 90° to the servo in the neutral position.

Use the screw that is included with your radio.



Use the screws that are included with your switch harness.

SWITCH

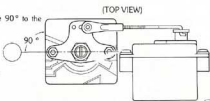
28 SPEED CONTROL ROD ASSEMBLY

Assemble as shown

1.

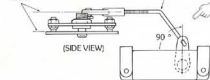


The center line should be 90° to the edge of the PC board.



The center line of the rod should be parallel to the board.

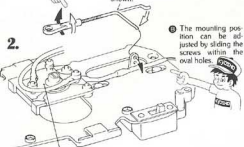
Bend the control rod here as shown.



① The length of the control rod can be adjusted by turning the ball end in the appropriate direction.

Bend the rod down as shown.

2.



Adjust the control rod length & the servo position so that the wiper arm position of the speed control is correct. (as shown in the illustrations)



Pay special attention to left & right body stopper positioning.

(TOP VIEW)



Ⓢ BODY STOPPER (R)

Ⓢ BODY STOPPER (L)

M3 NUT

M4x10 F/H SCREW

29 RADIO PLATE INSTALLATION

M4x8 SCREW (Wide Threaded)

M3 NUT

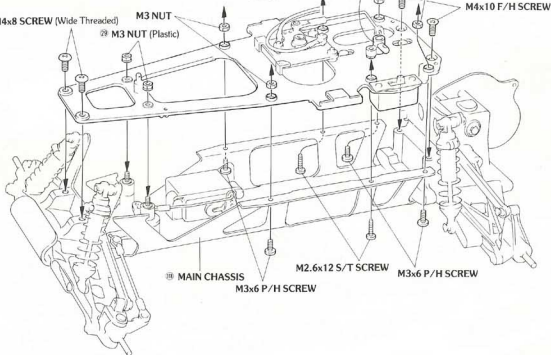
Ⓢ M3 NUT (Plastic)

Ⓢ MAIN CHASSIS

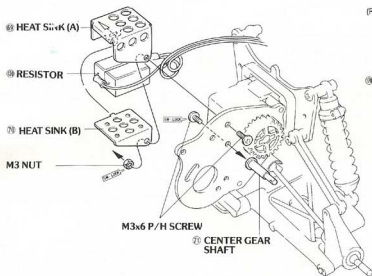
M3x6 P/H SCREW

M2.6x12 S/T SCREW

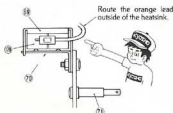
M3x6 P/H SCREW



30 SPEED RESISTOR INSTALLATION

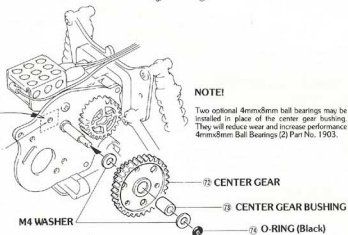


(REAR VIEW)



31 CENTER GEAR ASSEMBLY

This particular hole is used for mounting the optional motor guard (#UM-28). If you are not mounting the guard at this time simply cover the hole with an extra section of decal sheet which will not be used.

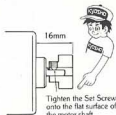
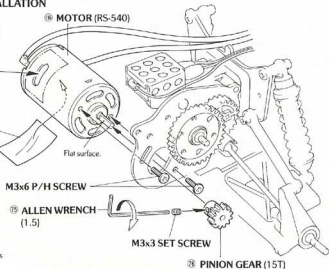


32 MOTOR INSTALLATION

We suggest the use of the optional motor cover #SC-040. This will protect the motor from dirt and debris entering and ruining the motor.

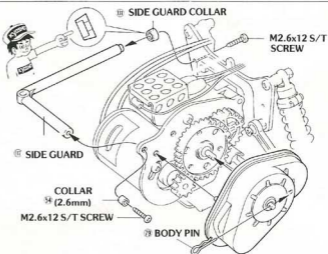
Use an extra section of the decal sheet which will not be used.

Actual Size

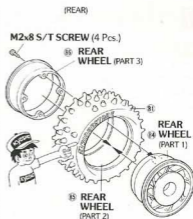
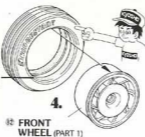
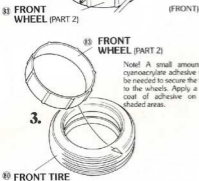
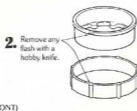


The pinion gear/center gear mesh may be adjusted by loosening these two screws and sliding the motor to the proper position.

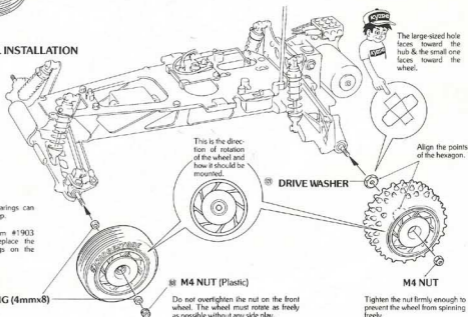
33 GEAR COVER INSTALLATION



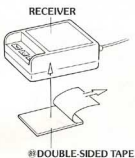
34 TIRE & WHEEL ASSEMBLY



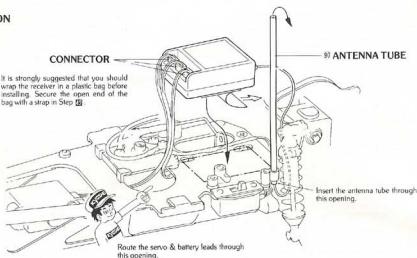
35 TIRE & WHEEL INSTALLATION



36 RECEIVER INSTALLATION



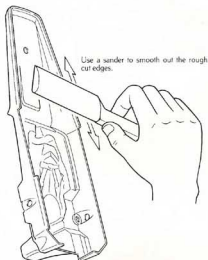
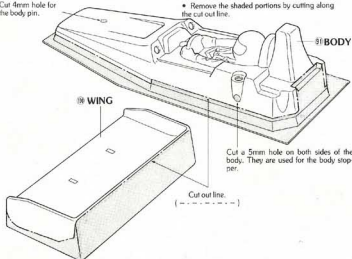
It is strongly suggested that you should wrap the receiver in a plastic bag before installing. Secure the open end of the bag with a strap in Step 35.



37 LEXAN BODY PREPARATION

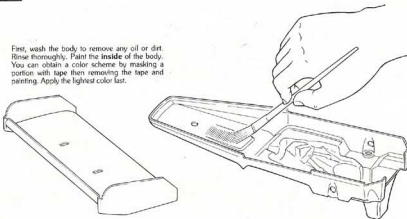
Cut 4mm hole for the body pin.

- Drill or cut the correct sized holes as shown in the illustrations.
- Remove the shaded portions by cutting along the cut out line.



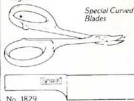
38 PAINTING

First, wash the body to remove any oil or dirt. Rinse thoroughly. Paint the **inside** of the body. You can obtain a color scheme by masking a portion with tape then removing the tape and painting. Apply the lightest color last.



KYOSHO

These special Lexan Scissors make trimming bodies a breeze and the sander comes in handy for finishing the rough edges.



KYOSHO

Polyca Color Paint is available for painting your Lexan bodies. 12 great looking colors.

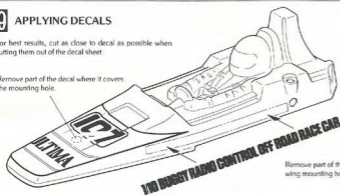
No. 2230



39 APPLYING DECALS

For best results, cut as close to decal as possible when cutting them out of the decal sheet.

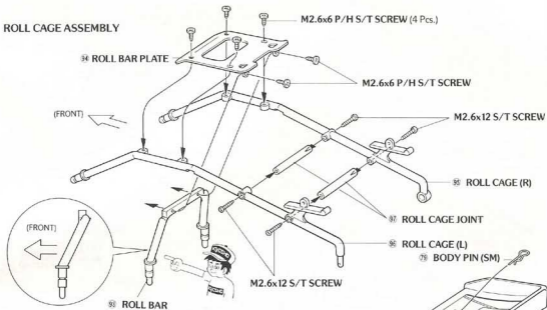
Remove part of the decal where it covers the mounting hole.



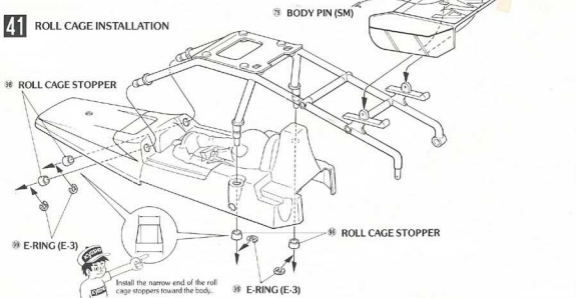
Remove part of the decal where it covers the wing mounting holes.



40 ROLL CAGE ASSEMBLY



41 ROLL CAGE INSTALLATION



42 BODY INSTALLATION

Follow in order steps ①-⑧

Secure the speed controller wires with a strap. You will need to leave some slack in the wires to allow for the movement of the speed control.

Secure the excess wires with a strap.

43 BATTERY MOUNTING

Fully charge your battery before operating your model every time.



Quick chargers can charge a completely discharged battery pack in 15 minutes. The one you use is your preference.



7.2V NiCd BATTERY PACK
(Not included with the kit.)

AUTO CHARGER
(#1848 or #1845)

Plug connectors together. When you are testing or ready to run the Ultima, be certain that the speed control is in the neutral position before connecting.

To release the strap, press here firmly.

Route the wires through this opening.

Remove the excess strap with a hobby knife. Leaving approximately 30mm sticking out.

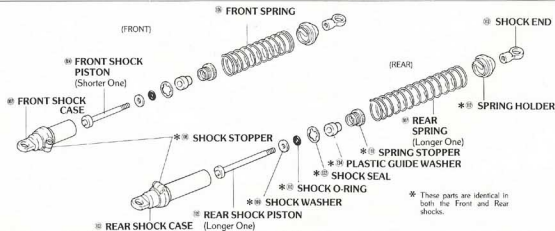
NiCd STRAP (LG)

KYOSHO



For maximum performance, use a high performance battery. The Kyosho 7.2V Power Battery or Racing Battery is recommended.

EXPLODED VIEW OF SHOCKS



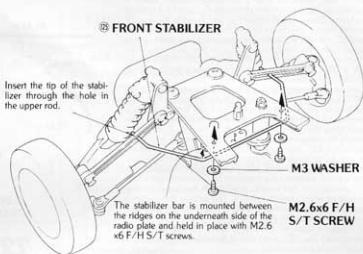
USE OF STABILIZERS

★ It is recommended to mount the stabilizer if these conditions occur.

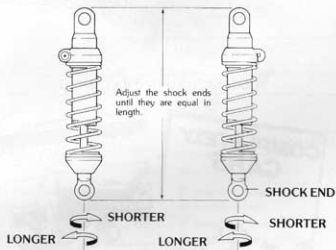
1. Very sensitive steering control (over steering).
2. Flat race track.
3. Hard race track (loss of traction).

★ It is not recommended to mount the stabilizer if these conditions occur.

1. Insensitive steering control (under steering).
2. Bumpy race track.



SHOCK LENGTH ADJUSTMENT

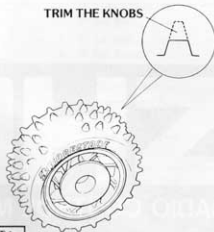


Adjust the shocks so that both front shocks and both rear shocks are exactly the same length.

CUSTOMIZING THE TIRES

You can increase the performance of your Ultima for various track conditions by trimming the knobs of the tires. Consult the chart below.

TRIM THE KNOBS



Track	Amount to Trim
Grass	1/2
Concrete	2/3
Sand	NONE
Hard Dirt	1/3
Soft Dirt	NONE

ADJUSTMENT OF SHOCK OIL AND SPRING

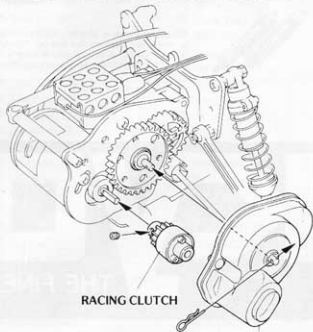
- Front Shock (Lighter oil, looser spring tension.) => **More effective steering**
- Front Shock (Heavier oil, stronger spring tension.) => **Less effective steering**
- Rear Shock (Lighter oil, looser spring tension.) => **More traction**
- Rear Shock (Heavier oil, stronger spring tension.) => **Less traction**

GEAR RATIOS AND OPTIONAL MOTORS

PINION GEAR	14 T	15 T	16 T	17 T	18 T	19 T	20 T
GEAR RATIO	8.8	8.2	7.7	7.3	6.9	6.5	6.2
MOTOR	LEMANS 240 S - 240 S B						
	LEMANS		360 G O L D - 360 P T				
	LEMANS 480 S - 480 T - 480 G O L D						

OPTIONAL RACING CLUTCH

This is a centrifugal clutch that limits the amount of torque applied to the gear train.



GEAR COVER

It will protect the drive train from loose stops. It also enhance handling characteristics in cornering and on loose terrain.

NOTE! The racing clutch is available in different sizes. See your parts listing.

BATTERY ELIMINATOR CIRCUITRY - BEC

What is BEC? BEC stands for Battery Eliminator Circuitry, which is exactly what it sounds like, a circuit that eliminates the need for a receiver battery. In the United States, use of the BEC system in radios is not widespread so chances are that you do not have it. But if you do, then read on!

The actual BEC circuitry lies within the receiver of your radio, not in your car/buggy. Some car/buggies have circuits that do eliminate the need for a receiver battery. But most cars labeled "BEC EQUIPPED" simply install a BEC type connector that your radio's switch harness plugs into. Turbo Optimas allows both methods.

The basic difference between the two is how much voltage goes to the receiver. A BEC type receiver can accept an input voltage of 7.2V and higher, depending on the state of charge of the 6-cell battery, which is where the receiver and servos get their power. In receivers other than BEC Equipped types the input voltage needs to be from 4.8V to 6V which is generally the voltage supplied by four "AA" batteries.

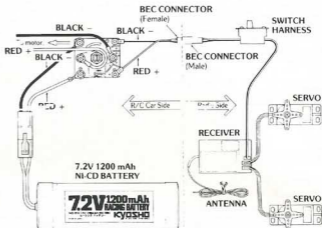
If your radio is not BEC Equipped you should use the method shown in Steps 25 and 26 to power your receiver. If your receiver is BEC Equipped, then you can use the BEC connector that is supplied with this kit. Your radio's switch harness has a matching BEC connector attached.

If the BEC connector is not already installed on the speed control, proper care should be taken when installing it. The polarity of the wires is very important and special attention should be given to get it correct. Remember to always connect Red (+) to Red (+) and Black (-) to Black (-). (Negative sides are not always black, sometimes they are white or other colors.) The BEC wires should be soldered on, where the battery wires go into the speed control.

Note: if polarity is reversed, even for an instant, permanent damage to your receiver could result. BE CAREFUL!

This diagram will help you in understanding the BEC system and how it is used on the Turbo Optimas.

For more information about the BEC system, contact your radio's manufacturer.



* Use Step 25 for installation of terminal ends on the BEC wiring connectors.

OPTIONAL PARTS



Low Profile Tires - Dirt track, Low Profile tires (5032) offer better handling and don't allow as much tire distortion. (Wheels not included with tires; requires W-5021). Asphalt Low Profile tires (5031) give better traction on-road.

Adjustable Pressure Shocks - Kyosho is famous for shocks and these are their best yet. Adjustable pressure shocks will fit most electric buggies and are completely adjustable for any track condition.

SUGGESTED FURTHER READING



A wealth of hints, tips and general information about R/C cars is available at your favorite hobby store. We suggest the "Completely Cars" book by Harry Higley which is packed with hundreds of photos and great "Tech-Tips." "R/C Car Action" a magazine published quarterly by Air-Age Publications will keep you on top of all the latest developments in the R/C car hobby.

KYOSHO

THE FINEST RADIO CONTROL MODELS

KIT No. 3115

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RUNNING YOUR ULTIMA

Note: The same battery powers the radio and motor. As soon as the car starts to slow down, recharge the battery. Otherwise, you will quickly lose control.



After running, always remove the battery from the car.



CHECK BEFORE EVERY RUN

- Check to see if all bolts and nuts are tightened firmly.
- Check to see NiCd battery is fully charged.
- Check to see if the steering and speed control is in proportion to your control of the transmitter.
- Check to see that all wiring is properly insulated.
- Check to see if parts are moving smoothly.

OPERATING PROCEDURES

- Turn transmitter switch on.
 - Switch on the receiver.
 - Check to see if the radio system is working properly.
- NOTE: When turning off the switches, turn off the receiver first then transmitter. Otherwise, the servo may be left in a position other than neutral.

TROUBLE SHOOTING IF THE CAR DOES NOT START

- Poor contact of connectors of batteries, connector, and speed control.
- Check to see if the NiCd battery is fully charged.
- Check to see shortage of battery power for the transmitter.
- Signal jamming from other radios.

KEY NUMBERS FOR PARTS

No.	Parts Name	Q'ty.	No.	Parts Name	Q'ty.	No.	Parts Name	Q'ty.	No.	Parts Name	Q'ty.
1	Main Gear	1	33	Front Shock Stay	1	55	Heat Sink (A)	1	88	Rear Shock Case	2
2	Differential Gear	1	34	Front Bulk Head	1	56	Heat Sink (B)	1	89	Front Shock Piston	2
3	Bushing Collar	2	35	Suspension Shaft (C)	2	57	Center Gear Shaft	1	90	Rear Shock Piston	2
4	Bevel Gear (A)	2	36	Front Suspension Arm	2	58	Center Gear	1	91	Front Spring	2
5	Bevel Gear (B)	2	37	Suspension Shaft (D)	2	59	Center Gear Bushing	1	92	Rear Spring	2
6	Bevel Shaft	2	38	Front Shock Bumper	1	60	O-Ring	1	93	Spring Stopper	4
7	Joint	2	39	Ball Nut	2	61	Allen Wrench (1.5)	1	94	Shock Washer	4
8	10mmx14 Bushing	2	40	Servo Saver (A)	1	62	Pinion Gear (15T)	1	95	Shock O-Ring	4
9	Gear Box (R)	1	41	Servo Saver (B)	1	63	Gear Cover	1	96	Shock Stopper	4
10	Motor Plate	1	42	Servo Saver (C)	1	64	Gear Cover Seal	1	97	Spring Holder	4
11	Counter Gear Shaft	1	43	Servo Saver (D)	1	65	Body Pin (SM)	4	98	Shock End	4
12	2mmx11 Pin	2	44	M2.6 Pivot Ball	1	66	Rear Tire	2	99	BEC Connector	1
13	5mmx10 Bushing	6	45	Center Rod	1	67	Rear Tire	2	100	Speed Control Rod	1
14	Gear Box (L)	1	46	Servo Saver Shaft	2	68	Front Wheel (1)	2	101	Motor (RS-540)	1
15	E-Ring (E-4)	1	47	Servo Saver Collar	2	69	Front Wheel (2)	2	102	Side Guard	1
16	Rear Shock Stay	1	48	Ball End (L)	4	70	Rear Wheel (1)	2	103	Main Chassis	1
17	Rear Bulk Head	1	49	Tie Rod	2	71	Rear Wheel (2)	2	104	Oil	1 Set
18	Upper Rod	4	50	Ball End (S)	2	72	Rear Wheel (3)	2	105	Resistor	1 Set
19	5.8mm Ball	12	51	Steering Rod	1	73	4mmx8 Plastic Bushing	4	106	Drive Washer	2
20	Gear Box Hatch	1	52	2.6mm Collar	2	74	M4 Plastic Nut	2	107	Shock Seal	4
21	Rear Hub	2	53	Speed Control Nut	1	75	Double Sided Tape	1	108	Shock Wrench	1
22	Rear Wheel Shaft	2	54	Speed Control Horn	1	76	Antenna Pipe	1	109	Snap (S)	2
23	Suspension Shaft (A)	2	55	Speed Control Pivot	1	77	Body	1	110	Front Stabilizer	1
24	E-Ring (E-2.5)	8	56	Motor Cord	1 Set	78	Decal	1	111	Allen Wrench (2)	1
25	Rear Suspension Arm	2	57	Speed Control Contact Point	2	79	Roll Bar	1	112	Counter Gear	1
26	Swing Shaft	2	58	Speed Control Stud	1	80	Roll Bar Plate	1	113	Final Pinion	1
27	Suspension Shaft (B)	2	59	Speed Control Spring	1	81	Roll Cage (R)	1	114	Rear Axle Stopper	1
28	Shock Bushing	4	60	PC Board	1	82	Roll Cage (L)	1	115	Body Hook	1
29	M3 Plastic Nut	6	61	Radio Plate	1	83	Roll Cage Joint	2	116	Side Guard Collar	1
30	Front Hub	2	62	Connector	1	84	Roll Cage Stopper	4	117	Body Stopper (L)	1
31	King Pin	2	63	Antenna Post	1	85	E-Ring (E-3)	6	118	Body Pin (LG)	3
32	Knuckle Arm (R)	1	64	Regulator	1	86	Wing	1	119	Plastic Guide Washer	2
33	Knuckle Arm (L)	1	65	Servo Stay	4	87	NiCd Strap	2			
34	Front Wheel Shaft	2	66	Body Stopper (R)	1	88	Front Shock Case	2			

PURCHASING PARTS FOR YOUR KIT

You can purchase replacement and optional parts for your kit. All of the parts identified by key numbers (see page 20 for a complete list) are usually not available singularly, but we offer these parts in convenient parts "packs" which can be purchased separately. To figure out which parts pack you need, find the key

number for that part within the manual. Then consult our parts pack guide, below. When referring to the parts you need, always use the parts pack number. For instance, if you need a counter gear shaft (Key #11) ask your dealer for Kyosho Parts Pack UM-05 (Gear Shaft Set).

SPARE PARTS LIST

Parts Pack #	Description	Includes These Key Numbers	Parts Pack #	Description	Includes These Key Numbers
OT-05	Joint	⑦ × 2	UM-15	Radio Plate	⑧ × 1
OT-06	Swing Shaft	⑩ × 2			
OT-18	Rear Shaft	⑫ × 2	UM-16	Body Set	⑬ ⑭ ⑮ ⑯ ⑰ ⑱ × 1
OT-19	Drive Washer	⑲ × 4			⑳ × 2 ㉑ × 4
OT-24	Pinion Gear (15T)	㉒ × 1	UM-17	Wheel Set	㉓ ㉔ ㉕ ㉖ ㉗ × 2
OT-28	Differential Gear Set	⑥ × 2 ④ ③ × 4	UM-18	Body	㉘ × 1
OT-29	O-Ring	㉚ × 10	UM-19	Decal (Ultima)	㉙ × 1
OT-32	5.8mm Ball	㉛ × 10	UM-20	Main Chassis	㉚ × 1
OT-33	Ball Nut (M2.6)	㉜ × 10	UM-21	Front Bumper	㉞ × 1
OT-36	M2.6 Pivot Ball	㉝ × 10	UM-22	Screw Set	Screw Nut, Wrench Set (w/o Plastic Nut)
OT-37	Cord Set	㉞ × 1 ㉟ × 1 Set			
OT-39	E-Ring (E-2.5)	㊱ × 10			
OT-58	Wing	㊲ × 1			
OT-66	Low Profile Tire (Rear)	㊳ × 2	1901	Ball Bearing (5mmx10)	2 Pcs. For Rear Hub & Gear Box
OT-72	Register Heat Sink	㊴ ㊵ × 1	1903	Ball Bearing (4mmx8)	2 Pcs. For Center Gear, Front Wheel
SC-26	Front Tire	㊶ × 2	1911	Ball Bearing (8mmx14)	2 Pcs. For Differential Gear
SC-46	Double Sided Tape	㊷ × 1	W-5031	Low Profile Tire (All Around)	For Hard Track (fits W-5021 Rims)
SC-67	Speed Control Set	㊸ ㊹ ㊺ ㊻ ㊼ ㊽ × 1 ㊾ × 2	W-5032	Low Profile Tire (High Grip)	For Soft Track (fits W-5021 Rims)
SC-78	Speed Control PC Board	㊿ × 1	OT-51	Pinion Gear (14T)	Gear Ratio 8:1
SC-79	Speed Control Contact Point	㊿ × 2	OT-52	Pinion Gear (16T)	Gear Ratio 7.7:1
SC-89	Tie Rod	① × 2 ② ③ × 4	OT-53	Pinion Gear (17T)	Gear Ratio 7.3:1
SC-105	Resistor	④ × 1 Set	UM-23	Pinion Gear (18T)	
EP-22	Body Pin	⑤ × 5	UM-24	Pinion Gear (19T)	
EF-26E	Connector	⑥ × 1	UM-25	Pinion Gear (20T)	
EF-39	NiCd Strap	⑦ × 6	1951	Shock Oil Set (S,M,H)	Three Different Weights
EF-37	Strap (S)	⑧ × 6	LM-15	Cooling Plate	For LeMans Motor
SD-79	Antenna Pipe	⑨ × 5	OT-64	Special Wing	[Metal]
KC-20	E-Ring (E-4)	⑩ × 4	SC-90	Front Tire	High Grip Type
CB-72	E-Ring (E-3)	⑪ × 4	W-5021	Low Profile Wheel	Silver
AB-30	Front Shock Set	⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ × 2 ⑳ × 4 ㉑ × 1	W-5044	Racing Clutch (14T)	The racing clutches limit the amount of torque applied to the gear train and prevents drive train parts breakage due to hard landings and sudden stops.
AB-31	Rear Shock Set	㉒ ㉓ ㉔ ㉕ ㉖ ㉗ ㉘ ㉙ × 2 ㉚ × 4 ㉛ × 1	W-5046	Racing Clutch (16T)	
1887	Shock Seal (M) (10mm)	㉜ × 10	W-5048	Racing Clutch (18T)	
1889	Body Pin	㉝ × 5	W-5001	Pressure Oil Shock (S)	Use w/UM-26 Special Shock Stay
UM-01	Gear Set	① ② ③ ④ ⑤ × 1	W-5002	Pressure Oil Shock (L)	Use w/UM-26 Special Shock Stay
UM-02	Bushing Set	⑥ × 1 ⑦ ⑧ × 2 ⑨ × 6	OT-76	Hard Final Pinion Gear	Need flat surface on the shaft
UM-03	Gear Box	⑩ ⑪ × 1	1990	Regulator	Stabilized power source for receiver
UM-04	Motor Plate	⑫ × 1	EF-103	Racing Wire	4mm Silicone Cords
UM-05	Gear Shaft Set	⑬ ⑭ × 1 ⑮ × 2	1863	Sponsor Sticker	Decal w/Sponsor Mark
UM-06	Shock Stay Set	⑯ ⑰ × 1	UM-26	Special Shock Stay	For pressure oil shock
UM-07	Suspension Shaft Set	⑱ ⑲ × 2	UM-27	Special Chassis	2mm Thickness
UM-08	Front Shaft Set	㉑ ㉒ × 2	UM-28	Motor Guard (Ultima)	
UM-09	Rod Set	㉓ ㉔ ㉕ ㉖ × 1 ㉗ × 2	W-5061	Universal Swing Shaft	Wheel Shaft, Swing Shaft Set
UM-10	Collar Set	㉘ ㉙ × 2	1952	Differential Oil	Use when willing to harden diff gear
UM-11	Upright Set	㉚ ㉛ × 1 ㉜ ㉝ × 2	W-5005	Special Rod Set	Upper Arm/Tie Rod Adjustment
UM-12	Bulk Head Set	㉞ ㉟ ㊱ ㊲ × 1	SC-040	Motor Cover	
UM-13	Suspension Arm Set	㊳ ㊴ × 2	1974	Complete Bearing Set	(6) 5mmx10mm (2) 8mmx14mm (6) 4mmx8mmx3mm
UM-14	Servo Saver Set	㊵ ㊶ ㊷ ㊸ ㊹ ㊺ × 1 ㊻ × 2 ㊼ ㊽ ㊾ ㊿ ㉑ ㉒ × 4			

OPTIONAL PARTS

SMALL PARTS REQUIRED FOR EACH STEP

- *
1 DIFFERENTIAL GEAR ASSEMBLY
 M2x10 S/T SCREW (4)
- ③ BUSHING COLLAR (2)
- ④ BEVEL GEAR (A) (2)
- ⑤ BEVEL GEAR (B) (2)
- ⑥ BEVEL SHAFT (1)
- 2 JOINT INSTALLATION**
 M4x4 SET SCREW (2)
- M5 WASHER (2)
- ⑦ JOINT (2)
- ⑧ 10mmx14mm BUSHING (2)
- ⑨ ALLEN WRENCH (2)
- 3 COUNTER GEAR INSTALLATION**
 ① COUNTER GEAR SHAFT (1)
- ② PIN 2mmx11 (1)
- ③ 5mmx10 BUSHING (1)
- ④ COUNTER GEAR (1)
- 4 FINAL PINION INSTALLATION**
 ⑤ 2mmx11 PIN (1)
- ⑥ FINAL PINION GEAR (1)
- 5 GEAR BOX ASSEMBLY**
 M3x18 S/T SCREW
- M3x33 SCREW (3)
- ⑦ 5mmx10mm BUSHING (1)
- ⑧ E RING (E-4)
- 6 REAR SHOCK STAY INSTALLATION**
 M3x8 P/H S/T SCREW (4)
- M3x16 F/H SCREW (2)
- M3x15 SCREW (2)
- M3 NUT (6)
- ⑨ 5.8mm BALL (4)
- 7 GEAR BOX INSTALLATION**
 M4x8 SCREW (Wide Threads) (6)
- M3x35 P/H SCREW (1)
- 8 REAR HUB ASSEMBLY**
 ⑩ 5mmx10mm BUSHING (4)
- ⑪ REAR SHAFT (A) (2)
- ⑫ E-RING (E-2.5) (2)
- ⑬ REAR SHAFT (B) (2)
- ⑭ REAR WHEEL SHAFT (2)
- 9 REAR SUSPENSION ARM ASSEMBLY**
 M3x12 F/H SCREW (2)
- M4x8 SCREW (Wide Threads) (2)
- 10 FILLING SHOCKS WITH OIL**
 ⑮ SHOCK WASHER (4)
- ⑯ SHOCK O-RING (4)
- ⑰ SHOCK END (4)
- ⑱ SHOCK SEAL (4)
- ⑲ PLASTIC GUIDE WASHER (4)
- 11 REAR SHOCK INSTALLATION**
 M3x12 F/H SCREW (2)
- ⑳ 5.8mm BALL (2)
- ㉑ SHOCK BUSHING (Plastic) (2)
- ㉒ M3 NUT (Plastic) (2)
- 12 FRONT KNUCKLE ARM ASSEMBLY**
 ㉓ E RING (E-3) (2)
- ㉔ KING PIN (2)
- ㉕ FRONT HUB SHAFT (2)
- ㉖ M2.6 PIVOT BALL (2)
- 13 FRONT SHOCK ASSEMBLY**
 M3x8 P/H S/T SCREW
- M3x16 SCREW (2)
- M3x15 F/H SCREW (2)
- M3 NUT (6)
- ⑳ 5.8mm BALL (4)
- 14 FRONT SUSPENSION ARM ASSEMBLY**
 ㉗ E RING (E-2.5) (6)
- ㉘ SUSPENSION SHAFT (C) (2) (Silver Color)
- ㉙ SUSPENSION SHAFT (D) (2)
- 15 FRONT BULKHEAD INSTALLATION**
 M3x12 F/H SCREW
- M4x8 SCREW (Wide Threads) (2)
- M4x10 F/H SCREW (2) (Wide Threaded)
- 16 FRONT SHOCK INSTALLATION**
 M3x16 SCREW (2)
- ㉚ SHOCK BUSHING (2)
- ㉛ M3 NUT (Plastic) (2)
- 17 SERVO SAVER ASSEMBLY**
 M2.6x6 P/H SCREW (1)
- M2.6 NUT (4)
- ㉜ BALL NUT (1)
- ㉝ M2.6 PIVOT BALL (2)
- ㉞ CENTER ROD (1)



SMALL PARTS REQUIRED FOR EACH STEP

18 SERVO SAVER INSTALLATION

- M3x35 P/H SCREW (2)
- M3 NUT (2)
- M3 WASHER (2)
- 48 SERVO SAVER SHAFT (2)
- 48 SERVO SAVER COLLAR (2)

19 TIE ROD INSTALLATION

- 38 BALL END (LG) (4)
- 38 TIE ROD (2)

21 STEERING ROD ASSEMBLY

- M3x8 P/H S/T SCREW (2)
- M3 WASHER (2)
- 32 BALL END (S) (1)
- 32 STEERING ROD (1)

22 STEERING SERVO INSTALLATION

- M3x8 P/H S/T SCREW (2)

23 SPEED CONTROL ASSEMBLY

- M2.6x6 P/H SCREW (1)
- M2.6x10 P/H SCREW (1)
- M3 NUT (Gold Color) (2)
- 41 BALL NUT (1)
- 34 2.6mm COLLAR (1)
- 35 SPEED CONTROL NUT (1)
- 37 SPEED CONTROL PIVOT (1)
- 38 SPEED CONTROL CONTACT POINT (2)
- 36 SPEED CONTROL STUD (1)
- 36 SPEED CONTROL SPRING (1)

24 BATTERY CONNECTOR INSTALLATION

- M3x12 SCREW (Gold Color) (2)
- M2.6x6 P/H S/T SCREW (1)
- M3x8 P/H S/T SCREW (1)
- M3 NUT (Gold Color) (2)
- 39 BODY MOUNTING POST (1)

25 SPEED CONTROL INSTALLATION

- M3 NUT (Gold Color) (2)

27 SPEED CONTROL SERVO INSTALLATION

- M3 WASHER (2)
- M3x8 P/H S/T SCREW (4)

28 SPEED CONTROL ROD ASSEMBLY

- M2.6 WASHER (2)
- 32 BALL END (S) (1)
- 32 SPEED CONTROL ROD (1)

29 RADIO PLATE INSTALLATION

- M4x8 SCREW (Wide Threads) (2)
- M4x10 F/H SCREW (2)
- M3x6 P/H SCREW (4)
- M2.6x12 S/T SCREW (2)
- M3 NUT (4)
- 27 M3 NUT (Plastic) (2)
- 39 BODY STOPPER (R) (1)
- 39 BODY STOPPER (L) (1)

30 SPEED RESISTOR INSTALLATION

- M3x6 P/H SCREW (2)
- M3 NUT (1)
- 71 CENTER GEAR SHAFT (1)

31 CENTER GEAR ASSEMBLY

- M4 WASHER (2)
- 74 O-RING (Black Color) (1)
- 73 CENTER GEAR BUSHING (1)

32 MOTOR INSTALLATION

- M3x6 P/H SCREW (2)
- M3x3 SET SCREW (1)
- 75 ALLEN WRENCH (1.5) (1)

33 GEAR COVER INSTALLATION

- M2.6x12 S/T SCREW (2)
- 34 2.6mm COLLAR (1)
- 36 SIDE GUARD COLLAR (1)
- 39 BODY PIN (1)

34 TIRE & WHEEL ASSEMBLY

- M2x8 S/T SCREW

35 TIRE & WHEEL INSTALLATION

- M4 NUT (2)
- 4mmx8mm BUSHING (Plastic) (4)
- M4 NUT (Plastic) (2)
- 36 DRIVE WASHER (2)

40 ROLL CAGE ASSEMBLY

- M2.6x6 P/H S/T SCREW
- M2.6x12 S/T SCREW (4)

41 ROLL CAGE INSTALLATION

- 39 BODY PIN (SM) (2)
- 36 ROLL CAGE STOPPER (4)
- 36 E RING (E-3) (4)

42 BODY INSTALLATION

- 39 BODY PIN (SM) (1)
- 39 BODY PIN (LG) (3)